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It is of special interest that all of these nebulae lie in the Magellanic Clouds, and that they are the only nebulae thus far observed by us in the Clouds. The first object, N. G. C. 1644, is in the Smaller Cloud, and the other four are in the Greater Cloud.

It is difficult to doubt that these nebulae are actually within the structure of the two Clouds, respectively: N. G. C. 1644, seen upon the Smaller Magellanic Cloud as a background, is the only known bright-line nebula in that region of the sky;¹ and the others are four of the nineteen known bright-line nebulae closely clustered upon the background of the Greater Magellanic Cloud, which are almost equally isolated from other nebulae of their kind.

Again, the radial velocities of the four nebulae observed in the Greater Cloud lie between 250 and 300 km. per second, recession. We should not expect the substantial equality of such high velocities unless the four objects bear a close relationship to each other or to the structure of the Greater Magellanic Cloud as a whole. It seems desirable that an effort should be made to measure the radial velocities of as many of the faint stars in the Magellanic Clouds as time and means will permit, in order to determine whether the average velocities of the stars in the Clouds approximate the velocities of the nebulae existing in the Clouds; that is, to determine whether the Magellanic Clouds possess high velocities of recession with reference to our general stellar system.

One is also inclined to inquire whether a more or less intimate resemblance may exist between the characters of the Magellanic Clouds and of the spiral nebulae, inasmuch as the spirals have been observed by Slipher to possess abnormally high radial velocities.

¹ For list of nebulae known to have bright-line spectra, see *Annals of Harvard College Obs.*, 76, 21 (1914).

NOTICES OF SCIENTIFIC MEMOIRS

Monograph of the Bombycine Moths of North America, including their Transformations and Origin of the Larval Markings and Armature. Part III. Families ceratocampidae (exclusive of ceratocampinae), saturniidae, hemileucidae, and brahmaeidae. By ALPHEUS SPRING PACKARD, edited by THEODORE D. A. COCKERELL. First Memoir of Volume 12 of the Memoirs of the National Academy of Sciences. Washington, 1914. 1-502 p. 34 fig. 113 pl.

The third part of the late Dr. A. S. Packard's *Monograph of the Bombycine Moths of North America*, published on December 31, 1914, by the National Academy of Sciences, and containing 16 pages including 34 figures and 113

plates, many of which are colored, covers the Saturnioid moths, including many species of large size, important as producers of silks, and others injurious to cultivated plants. This does not complete the work planned by Dr. Packard, but includes all the material which was sufficiently elaborated at the time of his death to be available for publication. As the work developed under Dr. Packard's hands, it became increasingly apparent to him that for a broad and philosophical view of the subject it was necessary to take into account the exotic genera and species, and thus the later work is of larger scope than the original title (*Bombycine Moths of North America*) would suggest. The work on the Saturniidae was, in fact, planned on the lines of a monograph of the species of the entire work, with special reference to the transformations, including elaborate new descriptions of all the larvae which could be obtained from any source. The editor found it impracticable to bring the work up to date, to include all known species, and sought only to include some account of lately discovered genera, and to elaborate somewhat more fully the part dealing with North American species. To do more than this would be to unduly increase the size of the volume without corresponding advantages, especially since the added matter would represent merely the republication of descriptions which have already been printed elsewhere. To do less would inconvenience the user of the book, who would look in it for up-to-date information, so far as the plan of the work might lead him to expect. The final result is necessarily imperfect and suffers greatly from the lack of the development and revision the work would have received at the hands of the illustrious author, had he lived; but on the other hand it represents a large positive contribution to entomology, especially on account of its numerous new and detailed descriptions, and the beautiful new illustrations of larvae.

Dr. Packard left comparatively few illustrations of the adult insects, and the absence of pictures of most of the genera discussed was felt to be a serious drawback. Fortunately this difficulty was overcome through the generosity of Mr. J. H. Watson of England, and of the U. S. National Museum, through Dr. H. G. Dyar, and so the published work contains figures, made from photographs, of a very large number of species, many of which are represented by the actual types, while many others are here figured for the first time.

The work here concluded is a continuation of previous investigations published as Volume 7, First Memoir, and Volume 9, Second Memoir, of the Memoirs of the National Academy of Sciences.

The Turquois: A Study of its History, Mineralogy, Geology, Ethnology, Archaeology, Mythology, Folk-lore, and Technology. BY JOSEPH E. POGUE. Third Memoir of Volume 12 of the Memoirs of the National Academy of Sciences. Washington, 1915.

This treatise contains 206 pages and is illustrated by 20 half-tone plates, 2 colored plates, and 6 text-figures. It is concerned with the treatment of